

FIG. 1

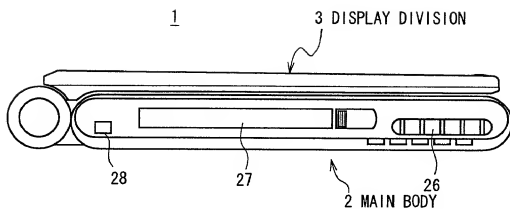


FIG. 2

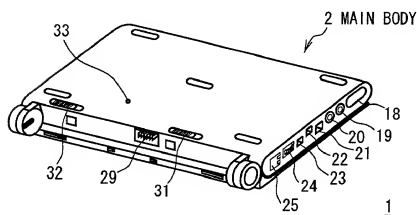


FIG. 3

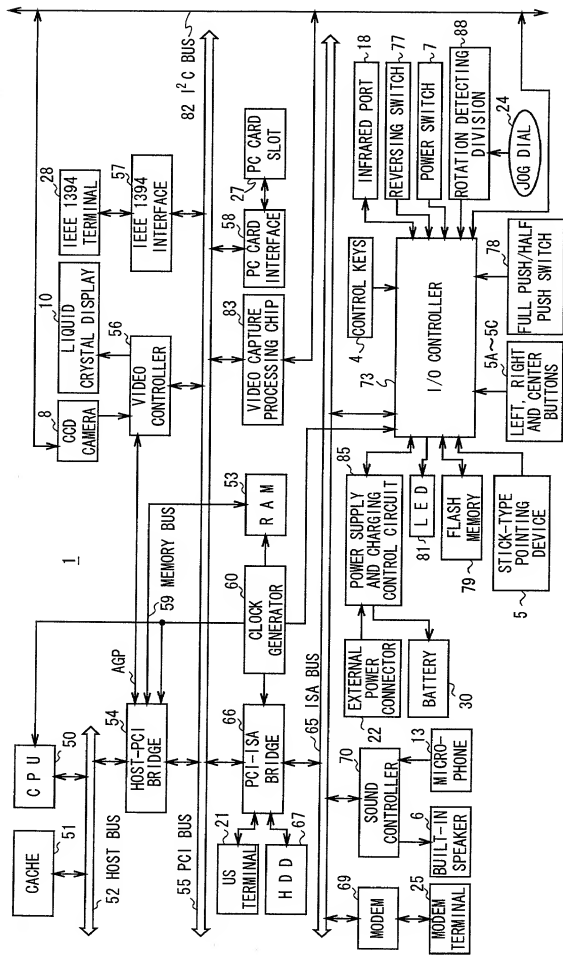


FIG. 4

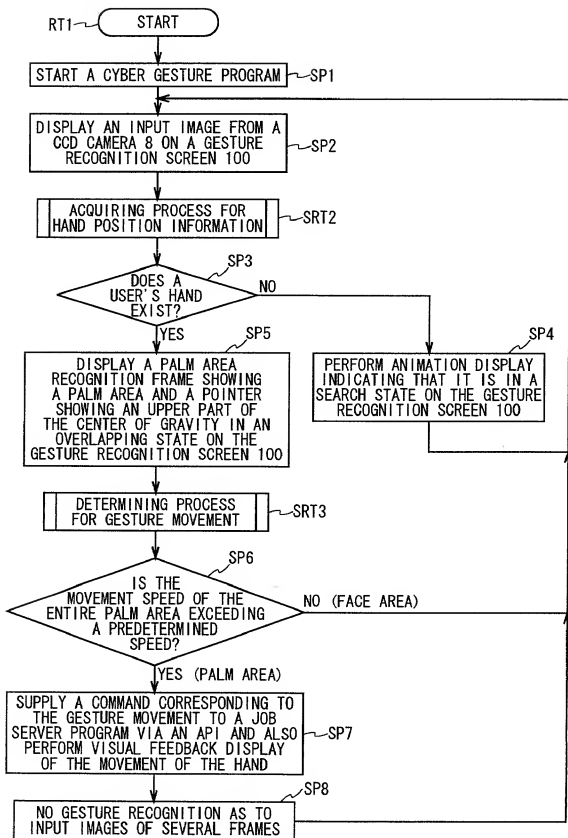


FIG. 5

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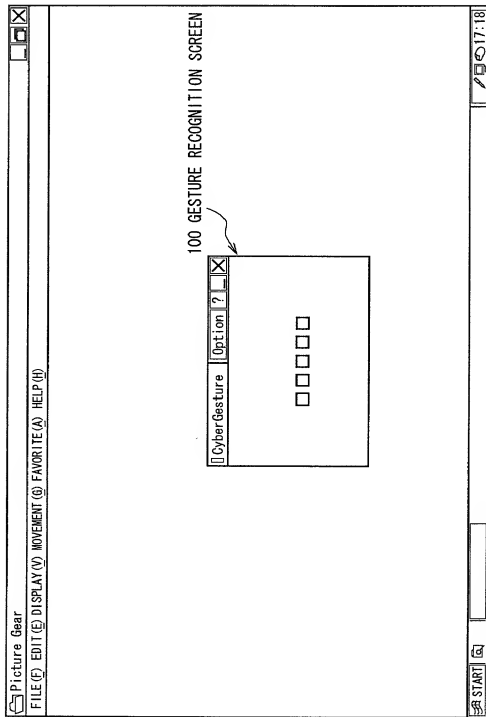


FIG. 6

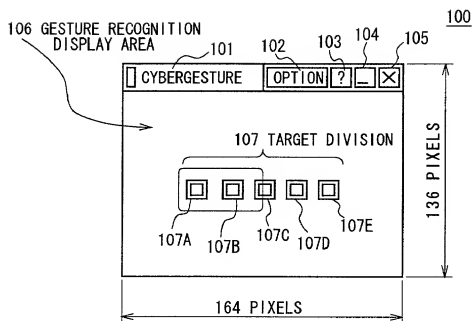


FIG. 7

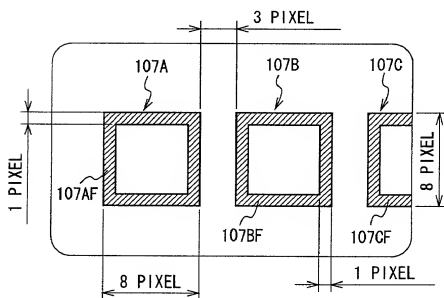


FIG. 8

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graph TD
    SRT2((SRT2)) --> START([START])
    START --> SP21[DIVIDE AN INPUT IMAGE INTO A PLURALITY OF COLOR AREAS]
    SP21 --> SP22[COMPARE EACH INDIVIDUAL COLOR AREA WITH A SKIN-COLOR TABLE]
    SP22 --> SP23{DOES A SKIN-COLOR AREA EXIST?}
    SP23 -- NO --> SP29[MOVE ON TO AN INPUT IMAGE OF THE NEXT FRAME]
    SP23 -- YES --> SP24[DETECT MOVEMENT OF THE SKIN-COLOR AREA BY COMPARING IT WITH A PREVIOUS FRAME]
    SP24 --> SP25{DOES A MOVING SKIN-COLOR AREA EXIST?}
    SP25 -- NO --> SP29
    SP25 -- YES --> SP26[DETECT THE LARGEST SKIN-COLOR AREA AND REGARD IT AS A PALM AREA]
    SP26 --> SP27[ACQUIRE COORDINATE VALUES OF THE PALM AREA]
    SP27 --> SP28[CALCULATE A POSITION OF THE UPPER PART OF THE CENTER OF GRAVITY IN THE PALM AREA BASED ON THE COORDINATE VALUES OF THE PALM AREA AND REGARD IT AS UPPER-PART-OF-CENTER-OF-GRAVITY DATA]
    SP28 --> MOVE3[MOVE ON TO STEP3]
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The flowchart illustrates the process of palm vein recognition. It begins with a start point labeled SRT2, leading to a process block SP21: "DIVIDE AN INPUT IMAGE INTO A PLURALITY OF COLOR AREAS". This is followed by SP22: "COMPARE EACH INDIVIDUAL COLOR AREA WITH A SKIN-COLOR TABLE". A decision diamond SP23 asks "DOES A SKIN-COLOR AREA EXIST?". If the answer is "NO", the process moves to SP29: "MOVE ON TO AN INPUT IMAGE OF THE NEXT FRAME". If the answer is "YES", the process proceeds to SP24: "DETECT MOVEMENT OF THE SKIN-COLOR AREA BY COMPARING IT WITH A PREVIOUS FRAME". Another decision diamond SP25 asks "DOES A MOVING SKIN-COLOR AREA EXIST?". If "NO", it moves to SP29. If "YES", it proceeds to SP26: "DETECT THE LARGEST SKIN-COLOR AREA AND REGARD IT AS A PALM AREA". This is followed by SP27: "ACQUIRE COORDINATE VALUES OF THE PALM AREA", then SP28: "CALCULATE A POSITION OF THE UPPER PART OF THE CENTER OF GRAVITY IN THE PALM AREA BASED ON THE COORDINATE VALUES OF THE PALM AREA AND REGARD IT AS UPPER-PART-OF-CENTER-OF-GRAVITY DATA". The final step is "MOVE ON TO STEP3".

FIG. 9

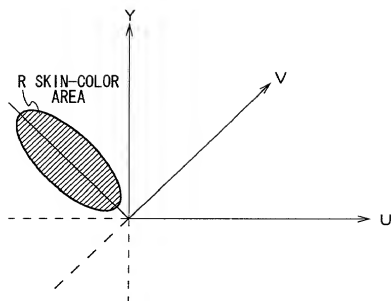


FIG. 10

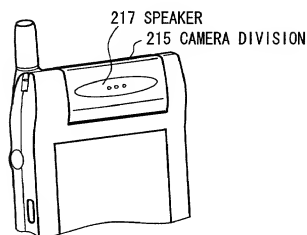


FIG. 19



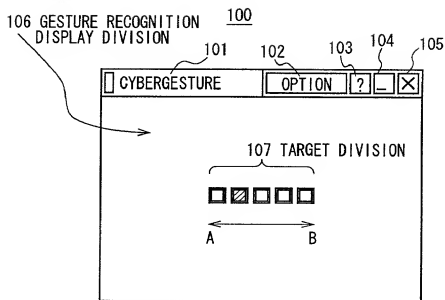


FIG. 11

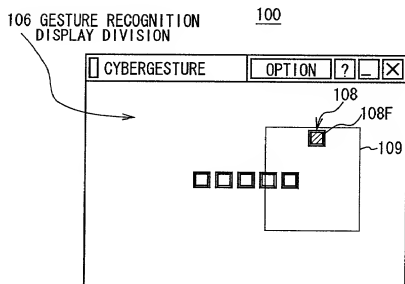


FIG. 12

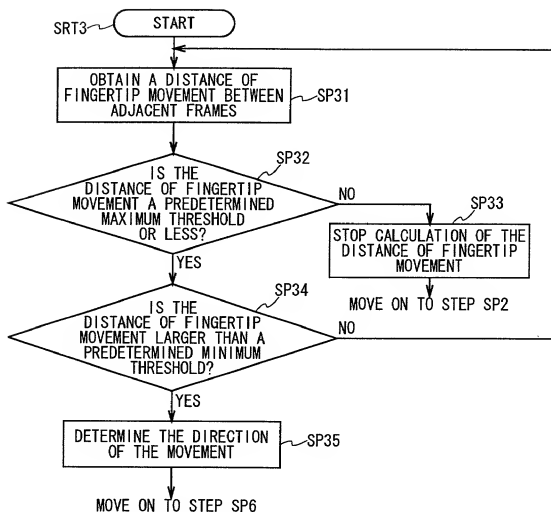


FIG. 13

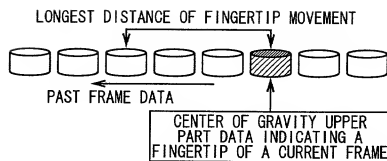


FIG. 14

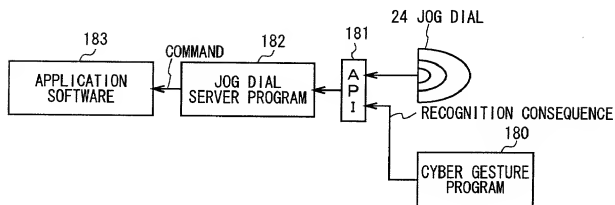


FIG. 15

FIG. 16A

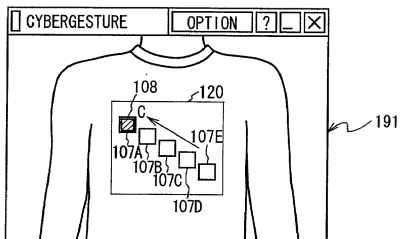


FIG. 16B

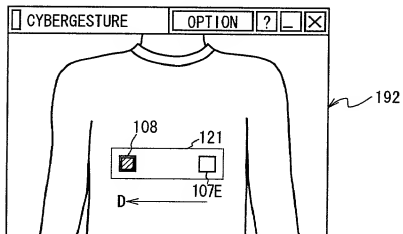
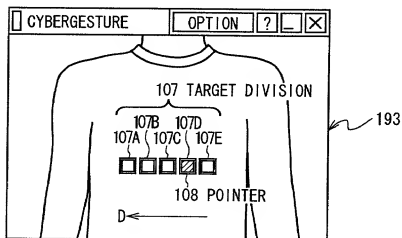


FIG. 16C



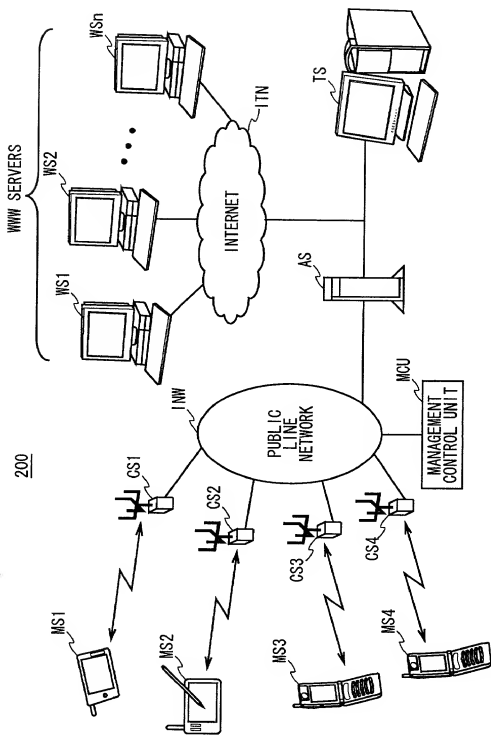


FIG. 17

MS3

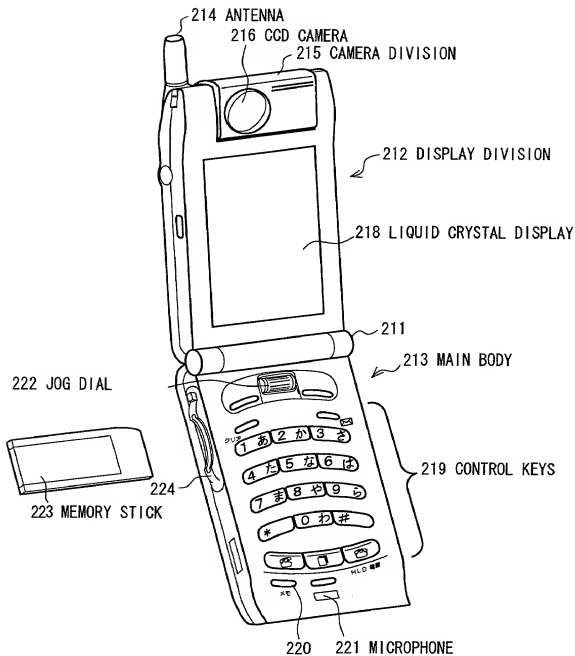


FIG. 18

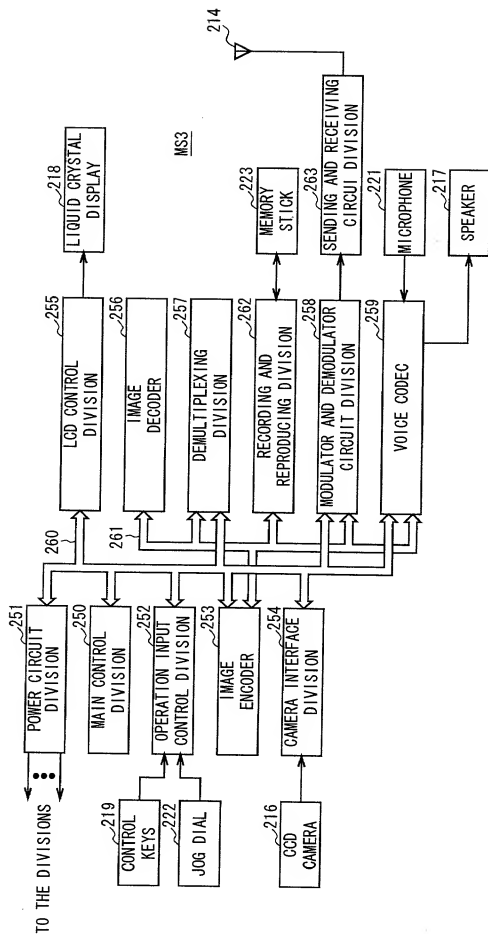


FIG. 20